RAKITSKIY, G.A.; ZINOV'YEV, V.Ye.

Wider utilization of reconstituted wool. Tekst.prom. 20 no.9:13-15 S '60. (MIRA 13:10)

1. Glavnyy inzhener fabriki imeni Oktyabr'skoy revolyutsii (for Rakitskiy). 2. Nachal'nik tekhnicheskogo byuro fabriki imeni Oktyabr'skoy revolyutsii (for Zinov'yev).
(Woolen and worsted manufacture)

RYSS, A.A., inzh.; ZINOV'YEV, Ye.I., inzh.

Control of a pulse-type safety valve. Elek. sta. 36 no.12:
76 D '65. (MIRA 18:12)

BONDAREV, G.I.; ZINOV'YEV, Ye.Sh.; NEPOKLONOV, Yu.A.; YENDOVITSKAYA, I.S.

Energy expenditure of fishery workers on trawlers fishing in the Barents Sea and North Atlantic. Vop. pit. 21 no.6:40-43 N-D '62. (MIRA 17:5)

1. Iz Tsentral'noy nauchno-issledovatel'skoy laboratorii gigiyeny vodnogo transporta, Moskva.

BONDAREV, G.I.; ZINOV'YEV, Ye.Sh.; NEPOKLONOV, Yu.A.; YENDOVITSKAYA, I.S.

Supply of vitamins C, B_1, B_2 and PP for fish processing workers on fishing craft in the North Atlantic. Vop. pit. 22 no.5:58-60 S-O '63. (MIRA 17:1)

1. Iz otdela gigiyeny pitaniya (zav. - kand. med. nauk G.I. Bondarev) TSentral'noy nauchno-issledovatel'skoy laboratorii gigiyeny vodnogo transporta, Moskva.

ZINOV'YEV, YU.

PA 26/49T94

USSR/Radio Receivers
Transformers

Jan 49

"Chokeless Supply Filter for the 'Rekord-47' Receiver," Yu. Zinov'yev, 1 p

"Radio" No 1

Use of ohmic resister in series with additional turns on the output transformer instead of an inductance in an ordinary pi-filter supply for the "Rekord-47."

[redacted]

26/49T94

ZINOV'YEV, Yu.

"The Input Circuits of the Receivers 'Rekord-47' and 'ARZ-49'," Radio, No. 6, 1949.

VAYSBERG, N. (Sverdlovsk); VESELOV, N. (Sverdlovsk); ZINOV'YEV, Yu.(Sverdlovsk);
LEONOV, N.(Sverdlovsk).

("The economics of the socialist chemical industry." N.N.Kalmykov, S.A. Vaishein. Reviewed by N.Vaisberg and others) Vop.ekon.no.7:150-153 Jl '56. (MLRA 9:9)

(Chemical industries)
(Kalmykov, N.N.)
(Vaishein, S.A.)

ZINOV'YEV, Yu.I., inzh.

Investigating the method of applying fluidized soil bed for the separation of potatoes from clods and stones. Trudy MIMESKH 12:49-66 '60. (MIRA 13:9)

(Potatoes--Harvesting)

ZINOV'YEV, Yu.I., inzh.

Studying the fluidized soil bed as a medium for separating potatoes form clods and stones. Trakt. i sel'khozmash. no.12:25-28 D '59.
(MIRA 13:3)

(Potato digger (Machine))

ZINOV'YEV, Yu. I., Cand Tech Sci (diss) -- "The separation of potato tubers from soil lumps and stones in a suspended layer of fine soil". Moscow, 1959. 15 pp (Min Higher and Inter Spec Educ RSFSR, Moscow Inst of Mechanization and Electrification of Agric), 150 copies (KL, No 9, 1960, 125)

1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

PROCESSES AND PROPERTIES INDEX

Ca

Continuous preparation of methyl sulfate. A. S. Golev and Ya. M. Zinov'ev. Russ. 56,546, Feb. 29, 1940. Contact-process gases, contg. about 6% SO_3, are brought into reaction with MeOH.

10

COMMON ELEMENTS

OPEN

MATERIALS INDEX

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

Ca

PROCESSES AND PROPERTIES INDEX

10

Simultaneous production of β-chloroalkyl chlorosulfites and α,β-dichloroparaffins. A. Ya. Yakubovich and Yu. M. Zinov'ev. U.S.S.R. 69,435, May 31, 1948. SO_2Cl_2 is treated in the cold with an olefinic hydrocarbon in the absence of catalyst or in the presence of pyridine or its derivs. The reaction products are sepd. out as usual. The reaction between SO_2Cl_2 and compds. contg. ethylenic bonds is a general one and may be carried out with olefinic or cycloolefinic hydrocarbons or their derivs. M. Hosch

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

CA

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Sulfochlorination, a new method of sulfonation of alkanes. Properties and uses of alkane sulfochlorides. A. Ya. Yakubovich and Yu. M. Zinov'ev. *Uspekhi Khim.* 16, 581-98(1947).—Crit. review; 40 references.

N. Thon

ZINOV'YEV, YU. M.

Sep/Oct 1947

USSR/Chemistry - Sulfonation
Chemistry - Olefins

"Sulfo-Chlorination, a New Method of Sulfonation of Alkenes Properties and Uses of Alkene Chlorosulfonides," A. Ya. Yakubovich, Yu. M Zinov'yev, Moscow, 17½ pp

"Uspekhi Khimii" Vol XVI, No 5

Classic reaction of sulfonation ranks with the reaction of nitration as one of the basic processes as a result of which aromatic carbohydrates are changed into their various resultant products. Gives detailed and comprehensive account of chemical reactions which occur and illustrates various steps by means of chemical formulas.

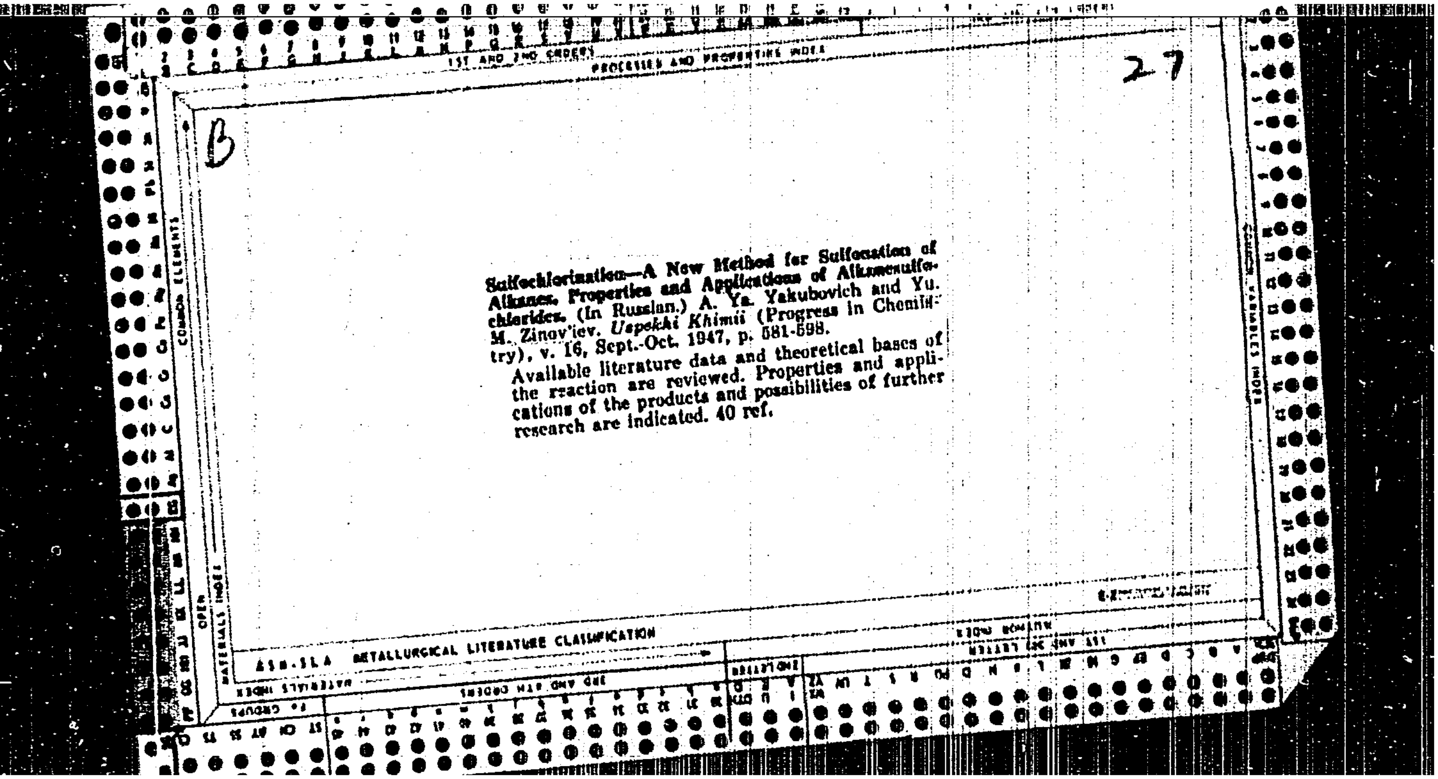
PA40T5

2

The radical SO_2Cl, its structure and reactions. A. Ya. Yakubovich and Yu. M. Zinov'ev. *J. Gen. Chem.* (U.S.S.R.) 17, 2028-47(1947).—Reactions were studied between SO_2Cl_2 and ethylene, propylene, and vinyl chloride at low temps. (20-25°) in the presence of catalysts, e.g., pyridine, and chlorides of S. The reactions are accelerated by these catalysts, resulting in the formation of 2-chloroalkyl chlorosulfites and, in the presence of pyridine, 2-chloroalkanesulfonyl chlorides. The mechanism of the reaction is interpreted as involving the radical SO_2Cl, which appears to be stabilized by resonance. A study was made of the reaction between chlorosulfites and carboxylic acids, which results in the formation of the esters of the acids with the corresponding alcs. E.g., acetic acid reacts with chloroisopropyl chlorosulfite to form the acetate of 1-chloro-2-propanol, with the liberation of SO_2 and HCl.

Arthur J. Miller

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION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27
1ST AND 2ND ORDERS
PROCESSES AND PROPERTIES INDEX
COMMON ELEMENTS
MATERIALS INDEX
OPEN
ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

Sulfochlorination—A New Method for Sulfonation of Alkanes. Properties and Applications of Alkanesulfochlorides. (In Russian.) A. Ya. Yakubovich and Yu. M. Zinov'iev. *Uspekhi Khimii* (Progress in Chemistry), v. 16, Sept.-Oct. 1947, p. 581-598.

Available literature data and theoretical bases of the reaction are reviewed. Properties and applications of the products and possibilities of further research are indicated. 40 ref.

B

27

Sulfochlorination—A New Method for Sulfonation of Alkanes. Properties and Applications of Alkanesulfochlorides. (In Russian.) A. Ya. Yakubovich and Yu. M. Zinov'iev. *Uspekhi Khimii* (Progress in Chemistry), v. 16, Sept.-Oct. 1947, p. 581-598.

Available literature data and theoretical bases of the reaction are reviewed. Properties and applications of the products and possibilities of further research are indicated. 40 ref.

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

ZINOV'YEV Yu. M.

47

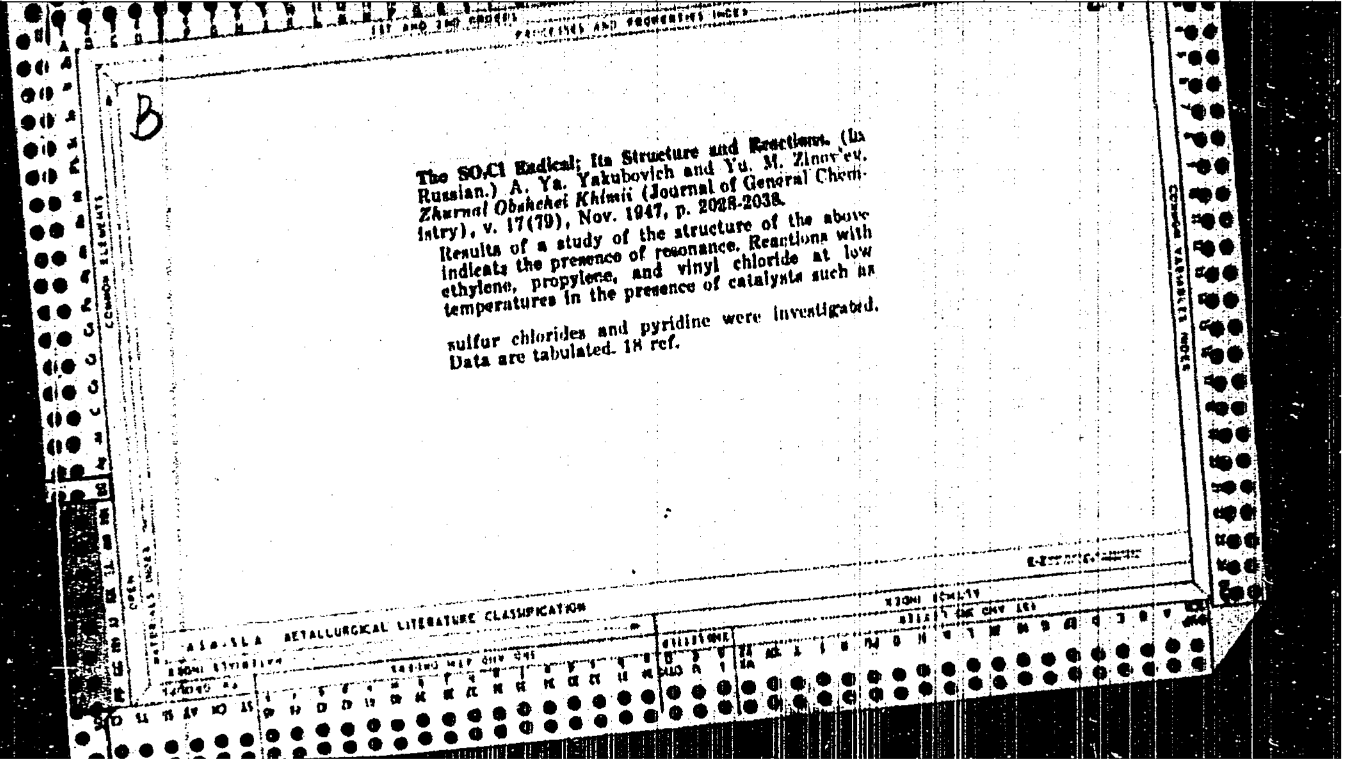
B

The SO_2Cl Radical; Its Structure and Reactions. (In Russian.) A. Ya. Yakubovich and Yu. M. Zinov'ev, *Zhurnal Obshchei Khimii* (Journal of General Chemistry), v. 17(79), Nov. 1947, p. 2028-2038.

Results of a study of the structure of the above indicate the presence of resonance. Reactions with ethylene, propylene, and vinyl chloride at low temperatures in the presence of catalysts such as

sulfur chlorides and pyridine were investigated. Data are tabulated. 18 ref.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



B

The SO_2Cl Radical; Its Structure and Reactions. (In Russian.) A. Ya. Yakubovich and Yu. M. Zinov'ev. *Zhurnal Obshchei Khimii* (Journal of General Chemistry), v. 17(79), Nov. 1947, p. 2028-2038.

Results of a study of the structure of the above indicate the presence of resonance. Reactions with ethylene, propylene, and vinyl chloride at low temperatures in the presence of catalysts such as sulfur chlorides and pyridine were investigated. Data are tabulated. 18 ref.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

ZINOV'YEV, Yu. M, SOBOROVSKIY, L. Z. and ENGLIN, M. A.

"Formation of the Phosphorus-Carbon Bond in the Coupled Reaction of Hydrocarbons, Phosphorus Trichloride, and Oxygen", Dokl AN SSSR, Vol. LXVII, No. 2, pp 293-295, 1949.

Translation W-16087, 3 Jan 1951

CA

Formation of a phosphorus-carbon bond in the combined reaction of hydrocarbons, phosphorus trichloride, and oxygen. L. Z. Soborovskiĭ, Yu. M. Zinov'ev, and M. A. Englin. *Doklady Akad. Nauk S.S.S.R.* 67, 293-5(1949).—In the complete absence of O, PCl_3 does not react (with formation of a C—P bond) with paraffins, cycloparaffins, olefins, or their derivs. below 350-400° and the process is unaffected by irradiation (Hg lamp). Similarly the hydrocarbons do not react with $POCl_3$ either in the presence or the absence of O. However, simultaneous action of PCl_3 and O on the hydrocarbons yields $RPOCl_2$ and $POCl_3$ (as well as HCl) with paraffins, while olefins undergo addn., yielding chloroalkanephosphonyl dichlorides and $POCl_3$. The reaction is formulated as $2PCl_3 + RH + O_2 = RPOCl_2 + POCl_3 + HCl$, and $RCH{:}CH_2 + 2PCl_3 + O = RC_2H_3ClPOCl_2 + POCl_3$, resp. Since the paraffins are essentially unattacked by O under mild conditions, the reaction is probably initiated by PCl_3 oxidation, causing a simultaneous reaction with the hydrocarbon, probably by radical reaction. PCl_3 and the liquid hydrocarbons were treated with O (2-3 hr.) passed through a porous plate disperser, with a consequent temp. rise to 40-50°; gaseous hydrocarbons were passed simultaneously with O into PCl_3. Distn. of the mixts. gave 35-60% yields of reaction products (olefin or paraffin types) calcd. on the reacted hydrocarbon, only C_6H_6 gave a very poor yield. The following were isolated (b.p., d_4^{20}, and n_D^{20} given, resp.): $C_4H_9POCl_2$ (from *isobutane*), b_5 55-7°, 1.2830, 1.4690; $C_5H_{11}POCl_2$ (from *pentane*), b_4 67-9°, 1.2180, 1.4694; $C_5H_{11}POCl_2$ (from *2-methylbutane*), b_4 64-5°, 1.2240, 1.4708; $C_6H_{13}POCl_2$ (from *hexane*), b_4 82-4°, —, —; $C_6H_{13}POCl_2$ (from *2,3-dimethylbutane*), b_4 75-6°, 1.1783, 1.4715; $C_6H_{11}POCl_2$ (from *cyclohexane*), b_4 80-4°, m. 30-40°, —, —; $C_7H_{15}POCl_2$ (from *heptane*), b_3 98-8°, 1.1852, 1.4800; $C_8H_{17}POCl_2$ (from *2,2,4-trimethylpentane*), b_4 81-2°, 1.1320, 1.4707; $ClCH_2CH_2POCl_2$ (from C_2H_4), b_4 86.5-7.0°, 1.5446, 1.4998. $C_3H_6ClPOCl_2$ (from C_3H_6), b_4 85-7°, 1.4015, 1.4880; $C_4H_8ClPOCl_2$ (from *butene*), b_5 83-7°, 1.3068, 1.4900. $C_4H_8ClPOCl_2$ (from *isobutylene*; product could not be freed from isobutylene polymers), b_3 78-80°, —, —. Similarly, $ClCH{:}CHCl$ and $CHCl_3$ give low yields of the corresponding P derivs. Neither MeCN nor $MeNO_2$ react and both of them hinder oxidation of PCl_3 to $POCl_3$, but they do not prevent the normal reaction of the reactive hydrocarbons listed above. C_6H_6 does not react. The work is believed to be independent of that reported by Clayton and Jensen (*C.A.* 43, 1315d). Styrene and octane derivs. are badly contaminated by polymers (no data). G. M. Kosolapoff

SOBOROVSKIY, L. Z.; ZINOV'YEV, Yu. M.; ENGLIN, N. A.

Poluchenie Fosfororganicheskikh Soedinenii Pri Reaktsii Trekhkhloristogo Fosfora i Kisloroda s Uglevodorodami, Ikh Khlorproizvodnymi i s Prostymi Efirami (Preparation of Phospho-Organic Compounds by the Reaction of Phosphorus Trichloride and Oxygen with Carbohydrates, the Halogen Derivatives, and with Ordinary Ethers), Doklady Akad. Nauk. SSSR (Reports of the A^S USSR, Vol. 73, pp 333-336, 1950).

CA

10

Preparation of phospho-organic compounds by a reaction of phosphorus trichloride and oxygen with hydrocarbons and their halogen derivatives and with ethers. L. Z. Soborovskii, Yu. M. Zinov'ev, and M. A. Englin. *Doklady Akad. Nauk S.S.S.R.* 73, 333 (1950); cf. C.A. 44, 1401i. —Aliphatic chlorides react with PCl_3 and O analogously to the hydrocarbons and yield the corresponding phosphonyl dichlorides, isolated as mixts. of the possible isomers; careful fractionation of the products from BuCl yielded all 4 possible isomers, whose distribution, expressed as moles/mole of total phosphonyl dichloride, is shown in parentheses: $ClCH_2CH_2CH_2CH_2POCl_2$ (0.10), b_{10} 110-13°, d^{20} 1.3952, $ClCH_2CH_2CH(POCl_2)Me$ (0.340), b_8 95-8°, n_D^{20} 1.4950; $ClCH_2CH(POCl_2)Et$ (0.205), b [illegible] d^{20} 1.4028, n_D^{20} 1.4963; $ClCH(POCl_2)Pr$ [illegible] 5.5°, d^{20} 1.3018, n_D^{20} 1.4040; [illegible] (0.005), b [illegible] 78-9°, d^{20} 1.3770, n_D^{20} 1.4880. The hydrocarbons also yield isomer mixts. and the mobility of the replaced H atoms is deducible from the yields of the corresponding isomeric phosphonyl dichlorides; in studies with hydrocarbons, it was shown that the P-C link is most readily formed at the tertiary C atom, followed by secondary C, and least readily at the primary C atom. The following isomer distributions were found: C_6H_{14} gave 0.731 $Me_2CHPOCl_2$, b_{10} 71.5-2.5°, d^{20} 1.2070, n_D^{20} 1.4750, and 0.269 $PrPOCl_2$, b [illegible] 78 [illegible], d^{20} 1.2022, n_D^{20} 1.4830; Me_3CH gave an unstated distribution between Me_3CPOCl_2, b [illegible] 78-80°, m. 110-10.5°, and $Me_2CHCH_2POCl_2$, b [illegible] 91-2°, d^{20} 1.2061, n_D^{20} 1.4070 (this compd. was also prepd. by the conventional reaction of [illegible] with Me_3CCH_2Cl, followed by hydrolysis and conversion to the chloride); $(Me_2CH)_2$ gave 0.918 $Me_2CHC(POCl_2)Me_2$, b [illegible] 81.5-4.0°, d^{20} 1.1882, n_D^{20} 1.4728, and 0.082 $Me_2CHCHMeCH_2POCl_2$, b [illegible] 85-7°, d^{20} 1.1700, n_D^{20} 1.4720. Reactions with the chlorides yielded the following products, the yields being those of mixts. of the possible isomers: from $(CH_2Cl)_2$, 3.8% $ClCH_2CHClPOCl_2$, b [illegible] 70-2°; from EtCl, 8.1% $C_2H_4ClPOCl_2$, b [illegible] 65-75°; from PrCl, 27.3% $C_3H_6ClPOCl_2$, b [illegible] 80 [illegible] 85°; from Me_2CHCl, 16.1% $C_3H_6ClPOCl_2$, b [illegible] 85-100°; from BuCl 47.2% $C_4H_8ClPOCl_2$, b [illegible] 85-120°; from Me_2CHCH_2Cl, 33.2% $C_4H_8ClPOCl_2$, b [illegible] 80-100°; Me_3CCl gave 3.3% $C_4H_8ClPOCl_2$, b [illegible] 73°; $Me(CH_2)_3CH_2Cl$ gave 43.6% $C_5H_{10}ClPOCl_2$, b [illegible] 140-70°. The reaction with ethers is more complex and reactions with Et_2O and Bu_2O give 2 types of products: alkoxyalkanephosphonyl dichlorides and alkyl dichlorophosphates (with Bu_2O some BuCl was also found); thus, 1 mole Bu_2O with O and PCl_3 (3 moles) gave 0.13 mole $BuOPOCl_2$ and 0.7 mole $BuOC_4H_8POCl_2$. [illegible] the latter product indicates a reaction similarity to that of the hydrocarbons and the basic process appears to be oxidation of PCl_3 (by O or air; the mechanism of this reaction is not clear at this time), apparently by addn. of O to form a highly active peroxide-type product having free radical properties and formulated as $Cl_3\dot{P}-O-\dot{O}$ the reaction yields 18 kcal./mole (calcd.) from bond energies of P-O and P=O links, 80 and 100 kcal., resp.; the adduct may also be a dipole ion, $Cl_3P^+-O-O^-$); this product reacting with PCl_3 yields $POCl_3$ (the only product of reaction of O and PCl_3 alone; heat of reaction, 117 kcal.). In the presence of hydrocarbons (or derivs.) the radical reacts with the latter, yielding new radicals which yield eventually $RPOCl_2$ in various radical reactions, some of which may be: $Cl_2POO + RH \rightarrow POCl_2 + \dot{R} + \dot{O}H$ (21 kcal.) and $PCl_3 + \dot{R} \rightarrow R\dot{P}Cl_3$, followed by $R\dot{P}Cl_3 + RH \rightarrow (RPCl_3H) + \dot{R}$ and $(RPCl_3H) \rightarrow RPCl_2 + HCl \rightarrow RPOCl_2$ (by action of O_2), or $R\dot{P}Cl_3 + \dot{O}H \rightarrow (RPCl_3OH) \rightarrow RPOCl_2 + HCl$. The radical mechanism is supported by: fairly large reaction rates even at −90°, the formation of RCl in reactions of isopentane and isooctane with PCl_3 and O (this probably is shown by $\dot{R} + \dot{O}H = ROH$; $ROH + POCl_3 = ROPOCl_2 + HCl$; $ROPOCl_2 + HCl = RCl + HOPOCl_2$), and the isolation of iso-BuCl and iso-$BuPOCl_2$ from the reaction with isooctane (representable by cleavage of the RH by $\dot{O}H$ into either $Me_3\dot{C}$ and Me_2CHCH_2OH or $Me_2CH\dot{C}H_2$ and Me_3COH). In addn. hydrocarbons of twinned mol. wt. are isolated from the reaction; e.g., MePh yields $C_{14}H_{14}$, b. 270-2°, does not freeze at −30°, indicating formation from $C_7\dot{H}_7$. Formation of $ROPOCl_2$ in reactions of ethers is not caused by ether cleavage under the exptl. conditions as neither was the R_2O used changed by heating to 170° with $POCl_3$ or PCl_3 7 hrs. in sealed tube, nor did dry HCl passed into the ether at room temp. 5 hrs. cause any change. The reaction may be explained by: $BuOBu + \dot{O}H \rightarrow BuOH + Bu\dot{O}$; $Bu\dot{O} + Bu_2O \rightarrow BuOH + BuO\dot{C}_4H_8$. BuOH reacts with $POCl_3$ yielding $ROPOCl_2$, while the radical reacts as indicated earlier, yielding the phosphonyl dichloride; this radical may also arise by: $Cl_2P(O)\dot{O} + Bu_2O \rightarrow POCl_2 + \dot{O}H + BuO\dot{C}_4H_8$. The products obtained from Et_2O or Bu_2O are listed below: $EtOC_2H_4POCl_2$, b_5 78-81°, d^{20} 1.3073, n_D^{20} 1.4660; $BuOC_4H_8POCl_2$, b_5 88-111°, d^{20} 1.2811, n_D^{20} 1.4530 (prepd. from EtOH and $POCl_3$, the product, b_{20} 53-4°, d^{20} 1.3905, n_D^{20} 1.4348); $EtOPOCl_2$, b_{20} 51-2°, d^{20} 1.3801, n_D^{20} 1.4330; $BuOPOCl_2$, b_{10} 51-5°, d^{20} 1.2260, n_D^{20} 1.4400.

G. M. Kosolapoff

ZINOV'YEV, YU.M.

USSR/Chemistry - Synthesis

[illegible]

Inst[illegible] : [illegible]

Submitted : July 29, 1955

ZINOVYEV, YU. M.

"Oxidative Chlorophosphonation of Chlorine Substituted Olefins," by L. Z. Soborovskiy, Yu. M. Zinov'yev, and L. I. Muler, Doklady Akademii Nauk SSSR, Vol 109, No 1, Jul 56, pp 98-100

Oxidative chlorophosphonation is defined as the reaction between hydrocarbons (or their derivatives), oxygen, and phosphorous trichloride (or products where part of the chlorine is substituted by organic groups, e.g., PCl_2R or $PClR_2$). In the case of vinyl chloride, this reaction was found to proceed in two different directions:

$$CH_2{=}CH\,Cl + 2\,PCl_3 + O_2 \begin{array}{l} \nearrow CHCl_2CH_2POCl_2 \qquad (30\text{-}35\%) \\ \qquad\qquad\qquad\qquad\qquad + POCl_3 \\ \searrow CH_2ClCHClPOCl_2 \qquad (65\text{-}70\%) \end{array}$$

The yield of the reaction product in the oxidative chlorophosphonation of allyl chloride was too low to say for sure that the reaction proceeded in one direction only. (U)

SUM. 1322

467

AUTHORS: Zinov'yev, Yu. M.; Kulakova, V. N.; Soborovskiy, L. Z.

TITLE: Reaction of Phosphorus Pentachloride with Certain Halogeno Olefines (Vzaimodeystviye pyatikhloristogo fosfora s nekotorymi galoidolefinami)

PERIODICAL: Zhurnal Obshchey Khimii, 1957, Vol. 27, No. 1, pp. 151-156 (U.S.S.R.)

ABSTRACT: The possibility of adding phosphorus pentachloride to certain chlorine-substituted olefins - vinyl chloride, vinylidene and allyl chlorides - was investigated. The reaction carried out under soft conditions (20°) showed that the PCl_5 has practically not reacted with the chloro-olefins listed but in a more rigid reaction (heated to 110° under pressure and without a solvent) the PCl_5 reacted in 100%, but the reaction mixture showed no traces of organo-phosphorus compounds. The reaction of vinyl chloride with PCl_5 yielded, in addition to the non-reacted olefins, PCl_3, 1,1,2-trichloroethane and a chlorinated hydrocarbon with double number of carbon atoms which was identified as the hitherto unknown 1,1,4,4-tetrachloro butane. From allyl chloride with 1,2,3-trichlopropane, by an analogous method, 2,5,6-tetrachlorohexane was obtained. The formation of olefine chlorination products

Card 1/2

Reaction of Phosphorus Pentachloride with Certain Halogeno Olefines

with double bond is easily explained by the chlorinating effect of PCl_5. The possibility of the formation of such polychloroalkanes with double the number of carbon atoms from phosphorus chloralkyltetra chlorides was proven by thermal decomposition of P-2-chlorpropyltetrachloride obtained from propylene PCl_5. Upon heating this tetrachloride to 100-110°, the reaction products showed PCl_3, 1,2-dichloropropane and hydrogen chloride plus a small amount of tetrachlorohexane. The latter could have been formed as a result of chlorination of the alkyl radical at the phosphorus, separation of the C - P bond and combination of the newly originated radicals into a molecule with doubled carbon chain. By dehydrochlorination of 1,1,4,4-tetrachlorobutane, the authors obtained new 1,4-dichlorobutadiene-1,3 and 1,1,4-trichlorobutene-3.
One graph. There are 13 references, of which 5 are Slavic.

ASSOCIATION:

PRESENTED BY:

SUBMITTED: January 28, 1956

AVAILABLE:

Card 2/2

AUTHORS: Zinov'yev, Yu. M., Kulakova, V. N., SOV/79-28-6-25/63
Soborovskiy, L. Z.

TITLE: The Synthesis of Organophosphorus Compounds of Hydrocarbons and Their Derivatives (Sintez fosfororganicheskikh soyedineniy iz uglevodorodov i ikh proizvodnykh) VII. Oxidizing Chlorophosphination With Alkoxy- and Dialkylamidodichlorophosphines (VII. Okislitel'noye khlorfosfinirovaniye alkoksi-i dialkilamidodikhlorfosfinami)

PERIODICAL: Zhurnal obshchey khimii, 1958, Vol. 28, Nr 6,
pp. 1551 - 1554 (USSR)

ABSTRACT: Contrary to the method (Ref 1) employed in an earlier paper by the authors they now prove that alkoxydichlorophosphines and dialkylamidodichlorophosphines can be used as phosphination agents, i.e. compounds in which the hydrocarbon radical is combined with the phosphorus by means of a third element: $RH+2R'XPCl_2+O_2 \longrightarrow RP(O)(XR')Cl+R'XP(O)Cl_2+HCl$, where R and R' are hydrocarbon radicals and where X is equal to O or to N. By means of the mentioned reagents the oxidizing chlorophosphination of cyclohexane with ethoxydichlorophosphine and vinylchloride

Card 1/3

The Synthesis of Organophosphorus Compounds of SOV/79-28-6-25/63
Hydrocarbons and Their Derivatives. VII. Oxidizing Chlorophosphination With
Alkoxy- and Dialkylamidodichlorophosphines

with methoxydichlorophosphine and dimethylamidodichlorophosphine was carried out. The corresponding chlorine anhydrides containing a phosphorushydrocarbon bond were separated as final products. The chlorophosphination of cyclohexane with ethoxydichlorophosphine lead to a mixture of compounds the separation of which by fractionation was difficult. In order to prove that this reaction actually takes place according to the above mentioned scheme the mass obtained was hydrolized and the cyclohexanephosphinic acid was separated from the products of hydrolysis. Also with the compounds of the ethylene series oxidizing chlorophosphination with alkoxydichlorophosphines takes place in a manner similar to the reaction carried out with phosphorus trichloride; the vinyl chloride was used for this purpose. The chlorine anhydride and the ethyl ester of dimethylamidodichloroethanephosphinic acid, the dimethyl ester of dichloroethanephosphinic acid and the methyl ester of dichloroethanechlorophosphinic acid were synthetized. There are 3 references, which are Soviet.

SUBMITTED: May 12, 1957

Card 2/3

The Synthesis of Organophosphorus Compounds of SOV/79-28-6-25/63
Hydrocarbons and Their Derivatives. VII. Oxidizing Chlorophosphination With
Alkoxy- and Dialkylamidodichlorophosphines

1. Phosphorus compounds (organic--Synthesis 2. Hydrocarbons--Chemical reactions

Card 3/3

SOV/79-28-6-45/63

AUTHORS: Baranayev, M. K., Zinov'yev, Yu. M., Skripach, T. K., Soborovskiy, L. Z.

TITLE: The Synthesis of Organophosphorus Compounds From Hydrocarbons and Their Derivatives (Sintez fosfororganicheskikh soyedineniy iz uglevodorodov i ikh proizvodnykh) VIII. The Investigation of Oxidation of Phosphorustrichloride With Oxygen (VIII. Izucheniye okisleniya trekhkhloristogo fosfora kislorodom)

PERIODICAL: Zhurnal obshchey khimii, 1958, Vol. 28, Nr 6, pp. 1628-1631 (USSR)

ABSTRACT: There are, in fact, very few papers dealing with the oxidation of phosphorus trichloride with oxygen. Only Remsen (Remzen) points to the possibility of oxidizing this chloride with ozonized oxygen. A patent is mentioned (Ref 9) in which the "combustion" at 150° of a gas mixture of PCl_3 and oxygen is described (molar ratio 2 : 1). The observations made by the authors show that the oxidation of phosphorus trichloride as well as that of the compounds synthesized from it, which correspond to the formula $XPCl_2$ (where X=chlorine,

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aryl- and alkyl radicals, alkoxyl-, dialkylamine- and other monovalent organic groups) with a single passage of gaseous oxygen or air can be obtained by means of the mentioned reagents. Earlier the assumption was made that the oxidation chlorophosphination as well as the oxidation of phosphorus trichloride have radical character. According to this assumption in the oxidation of phosphorus trichloride first the binding of oxygen to this substance takes place. The formed compound can be either regarded as biradical ($Cl_3\dot{P}O\dot{O}$) or as bipolar ion ($Cl_3\ PO\bar{O}$):$PCl_3 + O_2 \longrightarrow Cl_3POO$. This adduct converts immediately with a second molecule PCl_3 and forms phosphoroxychloride: $Cl_3\dot{P}O\dot{O} + PCl_3 \longrightarrow 2POCl_3$. When a hydrocarbon (RH) is present in the reaction mixture it can be included in the reaction. The biradical $Cl_3\dot{P}O\dot{O}$ forms the organic radical R· and the radical $\dot{O}H$:$Cl_3\dot{P}O\dot{O} + RH \longrightarrow POCl_3 + R^{\cdot} + \dot{O}H$ on the occasion of the collision with the molecule RH. Either of these radicals can lead to the formation of the chlorine anhydrides of the corresponding alkanephosphinic acids. The initial stage of the oxidation of phosphorus tri-

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The Synthesis of Organophosphorus Compounds From Hydrocarbons and Their Derivatives. VIII. The Investigation of Oxidation of Phosphorustrichloride With Oxygen

chloride with oxygen is a heterogeneous process dependent on the velocity of solution of the oxygen. The oxidation velocity of phosphorus trichloride with gaseous oxygen does in no case depend on the temperature. The activation energy of this oxidation is very small which fact points to the assumed free-radical character of this process. There are 4 figures and 11 references, 10 of which are Soviet.

SUBMITTED: May 29, 1957

1. Phosphorus chlorides--Oxidation

Card 3/3

AUTHORS: Zinov'yev, Yu. M., Soborovskiy, L. Z. SOV/79-29-2-55/71

TITLE: Synthesis of Phospho-organic Compounds From Hydrocarbons and Their Derivatives (Sintez fosfororganicheskikh soyedineniy iz uglevodorodov i ikh proizvodnykh). IX. Oxidizing Chlorophosphination of Butene-1, Butene-2, and Cyclohexene (IX. Okislitel'noye khlorfosfinirovaniye butena-1, butena-2 i tsiklogeksena)

PERIODICAL: Zhurnal obshchey khimii, 1959, Vol 29, Nr 2, pp 615-619 (USSR)

ABSRACT: In their earlier paper dealing with the reaction of hydrocarbons with PCl_3 and oxygen the authors pointed out that butene—1 is transformed by the reaction into chloric anhydride of the chlorobutane phosphinic acid (Ref 1) with the structure remaining open. In the present paper this anhydride is shown to be a mixture of isomeric compounds. On expelling relatively large amounts of this product (500 gr) fractions were separated having the same composition but different boiling temperatures. Oxidizing chlorophosphination of butene-2 led to the same chloric anhydride. However, it boiled within narrow limits. Constants and

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Synthesis of Phospho-organic Compounds From Hydrocarbons and Their Derivatives. IX. Oxidizing Chlorophosphination of Butene-1, Butene-2, and Cyclohexene SOV/79-29-2-55/71

composition of the separated fractions are specified in the table. For a comparison also chloric anhydrides of isomeric chlorobutane phosphinic acids, obtained by oxidizing chlorophosphination of 1- and 2-chlorobutane are shown there. The two reactions indicated may be the cause of the formation of isomeric compounds in the oxidizing chlorophosphination. It is probably the second one, in which the substitution of one of the hydrogen atoms by $POCl_2$ takes place, in connection with the affiliation of the forming HCl to the double bond, a reaction procedure that occurs as well with unsaturated compounds in the case of a substitution reaction (Ref 3). The boiling temperature of one of the fractions of chloric anhydride of chlorobutane phosphinic acid obtained from butene-1 agrees with the boiling temperature of the products formed from butene-2. The introduction of $POCl_2$ into the methyl group proceeds more difficultly in the oxidizing chlorophosphination of paraffins than it would in the case of the methylene group (Ref 2). In so far as there are no CH_2-groups in the butene-2, the second reaction should less

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Synthesis of Phospho-organic Compounds From Hydrocarbons and Their Derivatives. IX. Oxidizing Chlorophosphination of Butene-1, Butene-2, and Cyclohexene SOV/79-29-2-55/71

probably apply to it. For this reason in these compounds the structure of chloric anhydride must be ascribed to 2-chlorobutane phosphinic acid-3. Thus in the oxidizing chlorophosphination of butene-1 the above compound may form only according to scheme 2. The other fraction is apparently a mixture from the chloric anhydrides of 2-chlorophosphine-1 and 1-chlorophosphinic acid-2, forming according to scheme 1. The table shows that reaction 2 predominates. Also isomeric chloric anhydrides of cyclohexene-and chlorohexane phosphinic acid were synthesized. There are 1 table and 7 references, 5 of which are Soviet.

SUBMITTED: January 3, 1958

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5(3)

AUTHORS: Soborovskiy, L. Z., Zinov'yev, Yu. M., Spiridonova, T. G. SOV/79-29-4-21/77

TITLE: Synthesis of Organo-phosphorus Compounds From Hydrocarbons and Their Derivatives (Sintez fosfororganicheskikh soyedineniy iz uglevodorodov i ikh proizvodnykh). X. Oxidation Chlorophosphination of Some Ethylene Derivatives (X. Okislitel'noye khlorfosfinirovaniye nekotorykh proizvodnykh etilena)

PERIODICAL: Zhurnal obshchey khimii, 1959, Vol 29, Nr 4, pp 1139-1141 (USSR)

ABSTRACT: In addition to some reports on the oxidation chlorophosphination (Refs 1 - 3) the authors were able to introduce into this reaction also ethylene derivatives which contain bromine, chlorine, fluorine and a rather complex group such as the sulfofluoride radical. The oxido-chlorophosphination of 1,2-dichloroethylene, vinyl bromide, vinyl fluoride, 1,2-fluorochloroethylene and vinyl sulfofluoride yielded the acid chlorides of the corresponding substituted alkyl phosphinic acids. As is known, this oxido-chlorophosphination

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Synthesis of Organo-phosphorus Compounds From Hydrocarbons and Their Derivatives. X. Oxidation Chlorophosphination of Some Ethylene Derivatives

SOV/79-29-4-21/77

of vinyl chloride under the formation of isomers which differ from one another by the relative position of chlorine and the radical $POCl_2$(Ref 2). These acid chlorides synthesized in this paper apparently form also a mixture of two isomers of the structure $CH_2ClCHXP(O)Cl_2$ and $CHClXCH_2P(O)Cl_2$. In particular for the product of the reaction of vinyl fluoride with phosphorus trichloride and oxygen experimental data are available on the occurrence of isomers, the separation of which will be the subject of a special report. The reaction product of the oxido-chlorophosphination of vinyl bromide was divided by fractionation into two fractions which differ not only by the boiling temperature but also by their composition. The low-boiling fraction proved to be the acid chloride of bromo-vinyl-phosphinic acid, while the higher boiling one was the acid chloride of chloro-bromo-ethane phosphinic acid. The formation of the first compound probably results

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from the second dehydrogenation reaction of the acid chloride of chloro-bromo-ethane phosphinic acid in the distillation. Reference 2 confirms that the low-boiling product is the 2-bromine-substituted substance, while forms the higher boiling one the 1-chloro-2-bromine-derivative, and accordingly their formulae are $BrCH{=}CHP(O)Cl_2$ and $CH_2BrCHClP(O)Cl_2$ (Table). As by-product of the reaction of chlorine with vinyl bromide the 1,2-dichlorobromide ethane hitherto unknown was obtained. Consequently, the synthesis covered the acid chlorides of 1-chloro-2-bromo-, 1,2,2,-trichloro-, fluorochloro-, fluorodichloro- and chloro-(fluorosulfo)-ethane phosphinic acid. There are 1 table and 5 Soviet references.

SUBMITTED: March 3, 1958

AUTHORS: Bystrova, R. I., Zinov'yev, Yu. M., Soborovskiy, L. Z. SOV/79-29-6-68/72

TITLE: Synthesis of Organo-phosphoric Compounds From Hydrocarbons and Their Derivatives (Sintez fosfororganicheskikh soyedineniy iz uglevodorodov i ikh proizvodnykh). XI. Oxidizing Chlorophosphination of Nitriles (XI. Okislitel'noye khlorfosfinirovaniye nitrilov)

PERIODICAL: Zhurnal obshchey khimii, 1959, Vol 29, Nr 6, pp 2088-2092 (USSR)

ABSTRACT: In the reaction of the oxidizing chlorophosphination of hydrocarbons and their derivatives the C-P-linkage results; at the same time acid chlorides of corresponding alkane-phosphinic acids are formed. The reaction was carried out by halogen substituted paraffin hydrocarbons and by halogen olefins. The oxidizing chlorophosphination of alkoxy substituted hydrocarbons of ethers (Refs 1,2) is also possible. In the present paper the authors analyzed the reaction of phosphorus trichloride and oxygen with cyano substituted paraffins (nitriles of carboxylic acids). It was shown, that the oxidizing chlorophosphination of nitriles may proceed in two directions. The acid nitriles with 4 and more C-atoms per molecule form acid

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Synthesis of Organo-phosphoric Compounds From Hydrocarbons and Their Derivatives. XI. Oxidizing Chlorophosphination of Nitriles SOV/79-29-6-68/72

chlorides of the cyan alkane phosphinic acids $C_nH_{2n}(CN)P(O)Cl_2$, i.e. of compounds containing a C-P-linkage. The first links of the nitrile series (acetonitrile, propionitrile), as well as benzonitrile, form in the reaction with PCl_3 and O_2, compounds which contain the P-N-linkage, i.e. derivatives of acid chlorides of the imido-N-phosphoric acids, which correspond to the formula $RCCl{=}NP(O)Cl_2$. Acid chlorides of the cyanopropane and the cyanobutane-phosphinic acids have been synthesized. Two acid chlorides of the imido-N-phosphoric acid have been obtained whose structure corresponds probably to the formulas $C_2H_5CCl{=}NP(O)Cl_2$ and $C_6H_5CCl{=}NP(O)Cl_2$. The acid chloride of the imido-N-phosphoric acid, which is formed from acetonitrile, could not be separated in pure state. For the nitriles of carboxylic acids, which contain more than three C-atoms, the oxidizing chlorophosphination is carried out according to scheme (1), and for the acetonitrile, propionitrile, and benzonitrile according to scheme (2), and leads to the P-N-linkage. The spectroscopic analyses have been carried out by

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Synthesis of Organo-phosphoric Compounds From Hydrocarbons and Their Derivatives. XI. Oxidizing Chlorophosphination of Nitriles SOV/79-29-6-68/72

N. P. Rodionova, S. S. Dubov, and V. V. Fedotova. There are 1 table and 5 Soviet references.

SUBMITTED: March 3, 1958

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5(3)

AUTHORS: Soborovskiy, L. Z., Zinov'yev, Yu. M. SOV/79-29-7-10/83

TITLE: Allyl Esters of Some Alkane-, Alkene-, and Chloroalkane Phosphinic Acids (Allilovyye efiry nekotorykh alkan-, alken- i khloralkanfosfinovykh kislot)

PERIODICAL: Zhurnal obshchey khimii, 1959, Vol 29, Nr 7, pp 2152-2154 (USSR)

ABSTRACT: Allyl alkane phosphinates are of importance as initial products for the synthesis of various polymer products. Up to now some alkane and alkene phosphinates have been obtained by causing allyl alcohol to react with acid chlorides of the corresponding phosphinic acids (Refs 1, 2) or, according to Arbuzov (Ref 3), from triallylphosphite and alkane halides. Allyl octane phosphinate was synthesized according to reference 4. Kamay and Kukhtin (Ref 5) described allyl chloroalkane phosphinates. In the present paper some allyl alkane-, allyl alkene-, and allyl chloroalkane phosphinates were synthesized. The acid dichlorides of the corresponding acids which had been obtained by oxidizing chlorophosphination of paraffin and olefin hydrocarbons (heptane, cyclohexane, propylene, butene-1) were used as initial substances. As far as some acid dichlorides obtained by this

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Allyl Esters of Some Alkane-, Alkene-, and Chloroalkane Phosphinic Acids

SOV/79-29-7-10/83

method were mixtures of isomeric compounds, the resultant esters also consisted of isomers which differed by the position of the phosphorus-containing residue in the hydrocarbon radical (Refs 7, 8). Moreover, the acid chloride of propene phosphinic acid was obtained by dehydrochlorination of the acid chloride of chloropropane phosphinic acid. This acid chloride could be transformed into allyl propene phosphinate which probably contains an admixture of isomeric compounds. The constants of the compounds synthesized are tabulated. There are 1 table and 8 references, 6 of which are Soviet.

SUBMITTED: May 15, 1957

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SOV/79-29-8-40/81

5(3)

AUTHORS: Zinov'yev, Yu. M., Soborovskiy, L. Z.

TITLE: Synthesis of Organo-phosphorus Compounds From Hydrocarbons and Their Derivatives.XII. Oxidizing Chlorophosphination of Halogenated Alkanes

PERIODICAL: Zhurnal obshchey khimii, 1959, Vol 29, Nr 8, pp 2643-2646 (USSR)

ABSTRACT: In the present paper, the reaction of phosphorus trichloride and oxygen with 1,1-di- and 1,1,1-trichloro-ethane, 2-chlorobutane, and 1-fluoro-2-chloro-ethane as well as with the representatives of the monofluorine, bromine and iodine derivatives of the paraffins was investigated. All these halogen alkanes, excepted the iodine derivative, are subject to the oxidizing chlorophosphination, and yield the acid chlorides of the corresponding halogenated alkane-phosphinic acids:

$$C_nH_{2n+1}Hal+2\ PCl_3 + O_2 \rightarrow C_nH_{2n}Hal\ P(O)Cl_2+POCl_3+HCl.$$

The alkyl iodides apparently contain a small amount of iodine which inhibits the oxidation of PCl_3 with oxygen (Ref 2). Thus,

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Synthesis of Organo-phosphorus Compounds From Hydrocarbons SOV/79-29-8-40/81
and Their Derivatives. XII. Oxidizing Chlorophosphination of Halogenated
Alkanes

the butyl iodide does not enter into the above-mentioned reaction, and even hinders the oxidation of PCl_3 into the phosphorus-oxy-chloride. Table 1 gives the results of the oxidizing chlorophosphination of the halogen alkanes used, and characterizes the acid chlorides of the halogen-alkane-phosphinic acids. The acid chlorides (V) and (VI) could not be separated as such. Their formation in the oxidizing chlorophosphination of the above-mentioned chlorine derivatives of ethane had to be confirmed by transformation of (V) and (VI) into the diethyl esters of the corresponding di- and trichloro-ethane-phosphinic acid. When treating compound (V) with water, it is not only converted into the free acid, but at the same time the dehydrochlorination of the 2,2-dichloro-ethyl radical takes place, probably according to scheme 2. It was possible to carry out the oxidizing chlorophosphination of bromine- and fluorine-substituted paraffins as well as of some mono-, di- and trichloro-alkanes. The acid chlorides of the 1-bromo-butane, 2-fluoro-propane-1, fluoro-2-chloro-ethane, 2-chloro-butane-, 2,2-di-

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Synthesis of Organo-phosphorus Compounds From Hydrocarbons SOV/79-29-8-40/81
and Their Derivatives. XII. Oxidizing Chlorophosphination of Halogenated
Alkanes

chloro-ethane, and 2,2,2-trichloro-ethane-phosphinic acid were synthesized. The diethyl esters of the 2,2-dichloro- and 2,2,2-trichloro-ethane-phosphinic acid were obtained. Table 2 shows that on the oxidizing chlorophosphination the 1-bromo-butane behaves in exactly the same way as the 1-chloro-butane and 1-cyano-butane. There are 2 tables and 6 Soviet references.

SUBMITTED: May 15, 1958.

Card 3/3

S/030/60/000/008/013/013
B021/B054

AUTHOR: Zinov'yev, Yu. M., Doctor of Chemical Sciences

TITLE: Organophosphorus Monomers and Polymers

PERIODICAL: Vestnik Akademii nauk SSSR, 1960, No. 8, pp. 142-144

TEXT: This is a review of the book by Ye. L. Gefter: Fosfororganicheskiye monomery i polimery, published by the izdaniye AN SSSR (Publishing House AS USSR) in 1960. The book comprises 288 pages, the edition 6,000 copies, and the price is 18 rubles 90 kopecks. The abstracter states that the issue of collective volumes on the chemistry of organic phosphorus compounds can be regarded as useful in view of the great number of individual papers which have been published during the past 10 years. The issue of the book is the more useful since a similar collective volume by V. M. Plets was published in 1940 and is considered outdated. Ye. L. Gefter's monograph consists of 2 parts: The first part deals with organophosphorus compounds from which high-molecular, phosphorus-containing substances can be produced. The second part gives publication data on high-molecular organophosphorus compounds and their mode of application.

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Organophosphorus Monomers and Polymers

S/030/60/000/008/013/013
B021/B054

The author classified all data of scientific and patent publications on organophosphorus monomers and polymers which appeared until 1959. The abstracter regrets that the 7th section of the monograph dealing with the use of high-molecular organophosphorus compounds is written in such a concise form, and stresses that nothing has been said on the practical use of monomeric organic phosphorus compounds. Among others, the abstracter indicates the following shortcomings of the book: Poor selection of material; some well-known papers like those by M. I. Kabachnik and P. A. Rossiyskaya are not mentioned although they had been published in the "Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk" 1959, p. 1398; unusual technical terms are used in the book. In spite of some deficiences, Ye. L. Gefter's collective volume is considered absolutely useful, not only for experts in this field but also for a wide circle of investigators in the fields of elemental-organic compounds, and of organic chemistry in general. There are 3 references: 2 Soviet and 1 British.

Card 2/2

i

80755

S/079/60/030/05/34/074
B005/B016

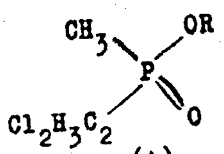
5.3630

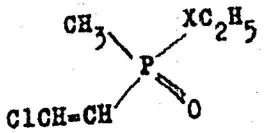
AUTHORS: Zinov'yev, Yu. M., Soborovskiy, L. Z.

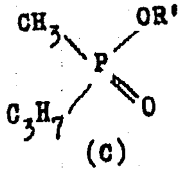
TITLE: Synthesis of Organophosphorus Compounds From Hydrocarbons and Their Derivatives. XIV. Oxidative Chlorophosphination of Vinyl Chloride With Methyl-dichloro Phosphine and Preparation of Some Esters of Dialkyl-phosphinic Acids

PERIODICAL: Zhurnal obshchey khimii, 1960, Vol. 30, No. 5, pp. 1571-1573

TEXT: In the present paper the synthesis of some chloro-substituted alkyl esters of dialkyl-phosphinic acids is described. 10 compounds of the following 3 types were synthesized:


(A)


(B)


(C)

R = CH_3, C_2H_5, n-C_3H_7, n-C_4H_9, $CH(CH_3)_2$, $CH_2CH(CH_3)_2$;
X = O or S, R' = CH_2CH_2Cl, $CH(CH_2Cl)_2$

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80705

S/079/60/030/05/34/074
B005/B016

Synthesis of Organophosphorus Compounds From Hydrocarbons and Their Derivatives. XIV. Oxidative Chlorophosphination of Vinyl Chloride With Methyl-dichloro Phosphine and Preparation of Some Esters of Dialkyl-phosphinic Acids

The acid chlorides of methyl-dichloro-ethyl-phosphinic acid (I), methyl-2-chloro-ethenyl-phosphinic acid (II), and methyl-propyl-phosphinic acid (III) were used as initial products for these syntheses. These acid chlorides were esterified with the corresponding alcohols. The acid chlorides (I) and (II) were first prepared by the authors by oxidative chlorophosphination of vinyl chloride with methyl-dichloro phosphine in the presence of oxygen; the third acid chloride was described previously (Ref. 2). On distillation of the products of the afore-mentioned reaction of vinyl chloride with methyl-dichloro phosphine, a partial hydrogen chloride separation from the acid chloride (I) is likely to occur, to give the acid chloride (II). On oxidative chlorophosphination of vinyl chloride with phosphorus trichloride, the acid chlorides of isomeric dichloro-ethane-phosphinic acids result (Ref. 1). Therefore, isomeric products are also likely to result on oxidative chlorophosphination of vinyl chloride with derivatives of phosphorus trichloride of the $RPCl_2$ type, for instance with the methyl di-chloro phosphine discussed. Accordingly, it seems very

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Synthesis of Organophosphorus Compounds From Hydrocarbons and Their Derivatives. XIV. Oxidative Chlorophosphination of Vinyl Chloride With Methyl-dichloro Phosphine and Preparation of Some Esters of Dialkyl-phosphinic Acids

S/079/60/030/05/34/074
B005/B016

probable that mixtures of isomeric esters were obtained in the ester synthesis from the acid chlorides prepared by chlorophosphination which, however, were not separated. In a table, all compounds synthesized by the authors (the 2 acid chlorides (I) and (II), 6 esters of type (A), 2 esters of type (B), and 2 esters of type (C)) are listed. Yield, boiling point, density, refractive index, and molecular refraction are given for each of these compounds. In an experimental part, the synthesis of the individual compounds is described. For all substances synthesized, the results of the ultimate analysis are given. There are 1 table and 4 references: 3 Soviet and 1 American.

LX

SUBMITTED: May 28, 1959

Card 3/3

ZINOV'YEV, Yu.M., doktor khimicheskikh nauk

"Phosphorus organic monomers and polymers" by E.L.Gefter. Reviewed by IU.M.Zinov'ev. Vest.AN SSSR 30 no.8:142-144 Ag '60. (MIRA 13:8)
(Phosphorus organic compounds)
(Gefter, E.L.)

L 29277-66 EWP(j)/EWT(m)/T RM

ACC NR: AP6019321 SOURCE CODE: UR/0079/65/035/008/1460/1463

AUTHOR: Gololobov, Yu. G.; Dmitriyeva, T. F.; Zinov'yev, Yu. M.; Soborovskiy, L. A.

ORG: none

TITLE: [illegible] IV. Vinyl chlorophosphates

SOURCE: Zhurnal obshchey khimii, v. 35, no. 8, 1965, 1460-1463

TOPIC TAGS: phosphate ester, acetaldehyde, organic synthetic process

ABSTRACT: In the reaction of PCl$_3$ with acetaldehyde at [illegible]-100°C in an autoclave at about [illegible] in the presence of triethylamine, [illegible] chlorophosphate (I) formed [illegible] vinyl dichlorophosphate [illegible] initial substances: [illegible] depending on the [illegible] PCl$_3$ + [illegible] → PCl$_3$ + Et$_3$N → [illegible] prepared for the first time. (CH$_2$=CH)$_2$P(O)Cl [illegible] By the reaction of [illegible] with triethylamine, vinyl [illegible] rophosphate (III) was prepared. [illegible] could be used as a starting material for the synthesis of phosphates with two different α-alkenyl ester groups - e.g., the reaction of (I) with butyraldehyde in the presence of Et$_3$N yielded vinyl - butenyl-1 chlorophosphate (IV). By treating (IV) with acetylacetone in the presence of Et$_3$N, the compound

UDC: 546.185:547.361.21

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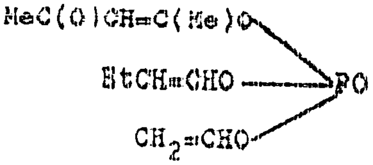
L 29277-66

ACC NR: AP6019321



$$\begin{array}{l} MeC(O)CH{=}C(Me)O \\ EtCH{=}CHO \\ CH_2{=}CHO \end{array} \Big\rangle PO$$

(V)

was obtained, which is the first phosphoric acid ester with three different alpha-alkenyl groups that has ever been prepared. The reaction of POCl$_3$ with acetone proceeded with greater difficulty than that with a [illegible]

[illegible]

10^{-3} mm; VI, 69-[illegible] mm [illegible] formulas and 1 table. [illegible]

SUB CODE: 07 / SUBM DATE: 15Jan64 / ORIG REF: 003

Card 2/2

L 41353-66 EWT(m)/EWP(j) RM

ACC NR: AP6021421 SOURCE CODE: UR/0413/66/000/011/0021/0021 33 B

INVENTOR: Ivin, S. Z.; Zinov'yev, Yu. M.; Kulakova, V. N.; Drozd, G. I.

ORG: none

TITLE: Preparation of alkoxyalkyldifluorophosphoranes. Class 12, No. 182158 15

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 11, 1966, 21

TOPIC TAGS: organic synthetic process, organic phosphorus compound, fluorinated organic compound

ABSTRACT: The subject of this invention is a method for the preparation of alkoxyalkyldifluorophosphoranes by reaction of alkylphosphonous difluorides with alcohols at -35 to -50C and in the presence of tertiary amines, e.g., dimethylaniline. [JK]

SUB CODE: 07/ SUBM DATE: 26Feb65

Card 1/1 11b UDC: 547.419.1.07

GOLOLOBOV, Yu.G., DMITRIYEVA, T.F.; [illegible], [illegible]; [illegible], L.[illegible]

Vinyl esters of phosphorus acids. Part 6: Vinyl chlorophosphates. Zhur. ob. khim. 35 no.8:1460-1463 Ag '65. (MIRA 18:8)

ZINOV'YEV, Yu.M.; SOBOROVSKIY, L.Z.

Interaction of tetraethyllead with phosphorus trichloride or methyldichlorophosphine and oxygen. Zhur. ob. khim. 34 no. 3: 929-932 Mr '64. (MIRA 17:6)

ZINOV'YEV, Yuriy Nikolayevich

[Analysis of potentialities for reducing the cost of coke] Analiz rezervov snizheniia sebestoimosti koksa. Moskva, Metallurgiia, 1965. 105 p. (MIRA 18:4)

ZINO'YEV, Yu. N.

137-1958-3-4835

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 3, p 56 (USSR)

AUTHORS: Zinov'yev, Yu. N., Benuni, A. Kh.

TITLE: The Problem of Comprehensive Utilization of Ural Copper Ores (K voprosu o kompleksnom ispol'zovanii mednykh rud urala)

PERIODICAL: Tr. Ural'skogo politekhn. in-ta, 1957, Nr. 66, pp 160-169

ABSTRACT: Bibliographic entry

Card 1/1

ZINOVEVA, A.

Kratkii Tekhnicheskii Spravochnik- Chast Vtoraia (Tech. Formulary and Reference Book- Part 2), 768 p., Moscow and Leningrad, 1950.

ZINOV'YEV, Yu.N., kand.ekonom.nauk; VAYSBERG, N.S., kand. ekon. nauk

Raise the level of the training of chemical engineers in economics. Zhur.VKHO 10 no.4:451-452 '65. (MIRA 18:11)

ZINOVEVA, A.

Kratkii Tekhnicheskii Spravochnik- Chast Pervaia (Technical Formulary and Reference Book- Part 1), 532 p., Moscow and Leningrad, 1949.

ZINOV'YEVA, A.D.

Structural changes in the stalk and leaves of Zea mays L.
during Bot.zhur. 45 no.3:400-404 Mr '60.
(MIRA 13:6)

1. Vitebskiy pedagogicheskiy institut.
(Corn(Maize)) (Ensilage) (Botany--Anatomy)

ZINOV'YEVA, A.D.; ISURINA, R.I.

Making visual aids on botany in the club of young naturalists.
Biol. v shkole no.5:82-83 S-O '61. (MIRA 14:9)

1. Vitebskiy pedagogicheskiy institut.
(Botany—Audio-visual aids)

ZINOV'YEVA, A.D.

Anatomical changes in the stalk of chevil. Bot.; issl. Bel. otd. VBO no.5:179-181 '63. (MIRA 17:5)

ZINOV'YEVA, A.P.; OROCHKO, D.I.

Macrokinetics of heterogeneous processes over moving catalysts.
Trudy VNII NP no. 9:268-273 '63. (MIRA 17:6)

S/065/60/000/012/001/007
E030/E412

AUTHOR: Zinov'yeva, A.P.

TITLE: Transient Response Characteristics of Some Types of Chemical Reaction

PERIODICAL: Khimiya i tekhnologiya topliv i masel, 1960, No.12, pp.1-10

TEXT: In order to assess the feasibility of an automatic process control system, a mathematical comparison is drawn between first order physical processes (such as scrubbing or washing) and first and second order chemical reactions. The first two involve relationships linear in the concentration of reactants and the last involves a quadratic relationship. However, similarities in behaviour occur and become apparent on introducing dimensionless parameters for the ratio of residence time to physical time elapsed within a reactor, the initial to final concentration in the system, and the initial to the asymptotic concentration for infinite time in the system. Similar curves may then be drawn, relating the relative time required for completion of each process to the non-dimensional residence time parameters, or alternatively to the non-dimensional degree of conversion in a finite time.

Card 1/2

S/065/60/000/012/001/007
E030/E412

Transient Response Characteristics of Some Types of Chemical Reaction

For systems with complete mixing and high degrees of conversion there is considerable inertia in the reactions. This, together with the aid of the curves referred to, enable mathematical models for feasible process control systems to be envisaged. There are 5 figures, 2 tables and 6 references: 2 Soviet and 4 non-Soviet. ✓

Card 2/2

ZINOV'YEVA, A.P.

PHASE I BOOK EXPLOITATION SOV/5653

Osnovy tekhnologii neftekhimicheskogo sinteza (Fundamentals of Synthesis Technology in Petroleum Chemistry) Moscow, Gostoptekhizdat, 1960. 852 p. 3,500 copies printed.

Eds.: Dintses, Arkadiy Il'ich, Professor, and Lev Aleksandrovich Potolovskiy, Professor; Executive Ed.: L.A. L'vova; Tech. Ed.: E.A. Mukhina.

PURPOSE: This book is intended for engineers and chemists of petroleum refineries and chemical plants, for councils of the national economy, planning organizations and scientific research institutes engaged in chemical processing and large-scale utilization of petroleum stock for the production of synthetic products.

COVERAGE: The book describes important commercial methods of producing hydrocarbon petroleum and gas stock and coal stock for the manufacture of alcohols, aldehydes, ketones, acids, detergents, synthetic fibers, and synthetic rubber. Flow sheets are included, and the basic equipment of the petrochemical industry is described. The physicochemical properties and use of intermediate and end synthetic products are also described. The state of the petrochemical industry outside the USSR and prospects for its development are covered. No personalities are mentioned. References follow each chapter.

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ZINOV'YEVA, A.P.; OROCHKO, D.I.

Macrokinetics of heterogeneous processes over moving-bed catalysts. Azerb. khim. zhur. no.2:61-66 '63.
(MIRA 16:8)

OROCHKO, D.I.; ZINOV'YEVA, A.P.

Developing a theory of chemical reactors. Khim.i tekh.topl.i masel 5 no.4:49-53 Ap '60. (MIRA 13:6)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut po pererabotke nefti i gaza i polucheniyu iskusstvennogo zhidkogo topliva.
(Chemical apparatus)

ZINOV'YEVA, A.P.

Transient dynamic characteristics of certain types of chemical reactions. Khim.i tekh.topl.i masel 5 no.12:1-10 D '60.
(MIRA 13:12)

(Chemical reaction, Rate of)

OROCHKO, D.I., ZINOV'YEVA, A.F.

Principles for the control of the operation of reactors used in large scale catalytic processes. Kin. i kat. 1 no.1:162-169 My-Je '60. (MIRA 13:8)

1. Laboratoriya khimicheskikh reaktorov Vsesoyuznogo nauchno-issledovatel'skogo instituta po pererabotke nefti i gazov i polucheniyu iskusstvennogo zhidkogo topliva.
(Catalysis)

ZINOV'YEVA, A.P.

Means of determining temperatures equivalent to average reaction rates of nonisothermal processes in flow reactors. Khim i tekh. topl. i masel 3 no.3:34-42 Mr '58. (MIRA 11:3)
(Chemical reaction, Rate of)
(Temperature)

OROCHKO, D.I., prof.; MELIK-AKHNAZAROV, T.Kh., kand.tekhn.nauk;
ZINOV'YEVA, A.P.

Reaction vessels for chemical processes in a fluidized bed.
Khim.nauka i prom. 3 no.6:694-703 '58. (MIRA 12:2)
(Fluidization) (Chemical engineering--Equipment and supplies)

SOV/63-[illegible]

AUTHORS: Orochko, D.I., Professor, Melik-Akhnazarov, T.Kh., Candidate of Technical Sciences, Zinov'yeva, A.P.

TITLE: Reactor Installations for Chemical Processes in the Boiling Layer (Reaktornyye ustroystva dlya khimicheskikh protsessov v kipyashchem sloye)

PERIODICAL: Khimicheskaya nauka i promyshlennost', 1958, Vol III, Nr 6, pp 694-703 (USSR)

ABSTRACT: The method of pseudo-liquifaction of finely ground reagents, catalysts, etc by means of a boiling layer has aroused considerable interest. A diagram of a usual regenerating reactor in catalytic cracking is shown in Figure 1. In many cases the new technological processes caused no changes in the existing equipment (Figures 3-7). In reactors with continuous regeneration of the catalysts the system may be even simplified (Figure 3-7). It is used in the highly exothermic catalytic synthesis of hydrocarbons from CO and H_2. The unwanted circulation within the reactor is eliminated by dividing it into sections. This sectionalization complicates the reactor constructions, but facilitates the realization of many chemical processes in

Card 1/3

SOV/63-3-6-2/[illegible]

Reactor Installations for Chemical Processes in the Boiling Layer

industry. The introduction of the highly reactive component into the reaction zone by small portions has the same effect as sectionalization. Another method is the use of a counterflow of the solid material and the steam-gas components. It has been shown that the oxidation regeneration of catalysts under the conditions of a step-wise counterflow is accelerated 10 - 11 times. The catalytic cracking of oil distillates under the same conditions is accelerated 2 - 4 times. The heat transmission from the boiling layer of the powder-like materials to the cooling boiling water reaches 250 - 300 kcal/m^2 per hour and °C. Reactors with parallel sectionalization (Figure 12) have been tested in the reduction processes of ores with low sulfur content. In these reactors the equal removal of the material with low sulfur content from the various sections is most important. Diagrams of the interior installations of one-section reactors with boiling layer used in catalytic cracking are shown in Figures 13 and 14. The device for the removal of excess heat of reaction is very important

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SOV/65-3-6-2/43

Reactor Installations for Chemical Processes in the Boiling Layer

for satisfying operation. The described methods and installations find a large application in atomic and nuclear transformations (Figure 17).
There are 17 diagrams, 1 table, and 26 references, 17 of which are Soviet and 9 English.

Card 3/3

PROCESSES AND PROPERTIES INDEX

Ch

2

Nomograph for determining the phase composition in the single evaporation or condensation of multicomponent mixtures. A. P. Zinov'eva. *Neftyanoe Khoz.* 25, No. 2, 60-2(1947). Bruno C. Metzner

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

OBRYADCHIKOV, S.N.; OROCHKO, D.I.; ZINOV'YEVA, A.P.

[Petroleum technology] part 2. Tekhnologiia nefti. Izd.3-e, perer.i dop. Pod red. i s dopolneniiami D.I.Orochkogo. Moskva, Gos. nauchno-tekhn. izd-vo neftianoi i gorno-toplivnoi lit-ry, 1952, 408 p. (MLRA 7:3)

(Petroleum--Refining)

ZINOV'YEVA, A.P.

New expression of temperature, equivalent to the average rate of anisothermal reactions. Zhur.fiz.khim. 39 no.11:2819-2821 N '65. (MIRA 18:12)

ZINOV'YEVA, E. G.

USSR / General Biology. Physical and Chemical Biology. B-1

Abs Jour : Ref Zhur - Biol., No 2, 1958, No 4738

Author : Graevskiy, E. Ya., Zinov'eva, E.G.

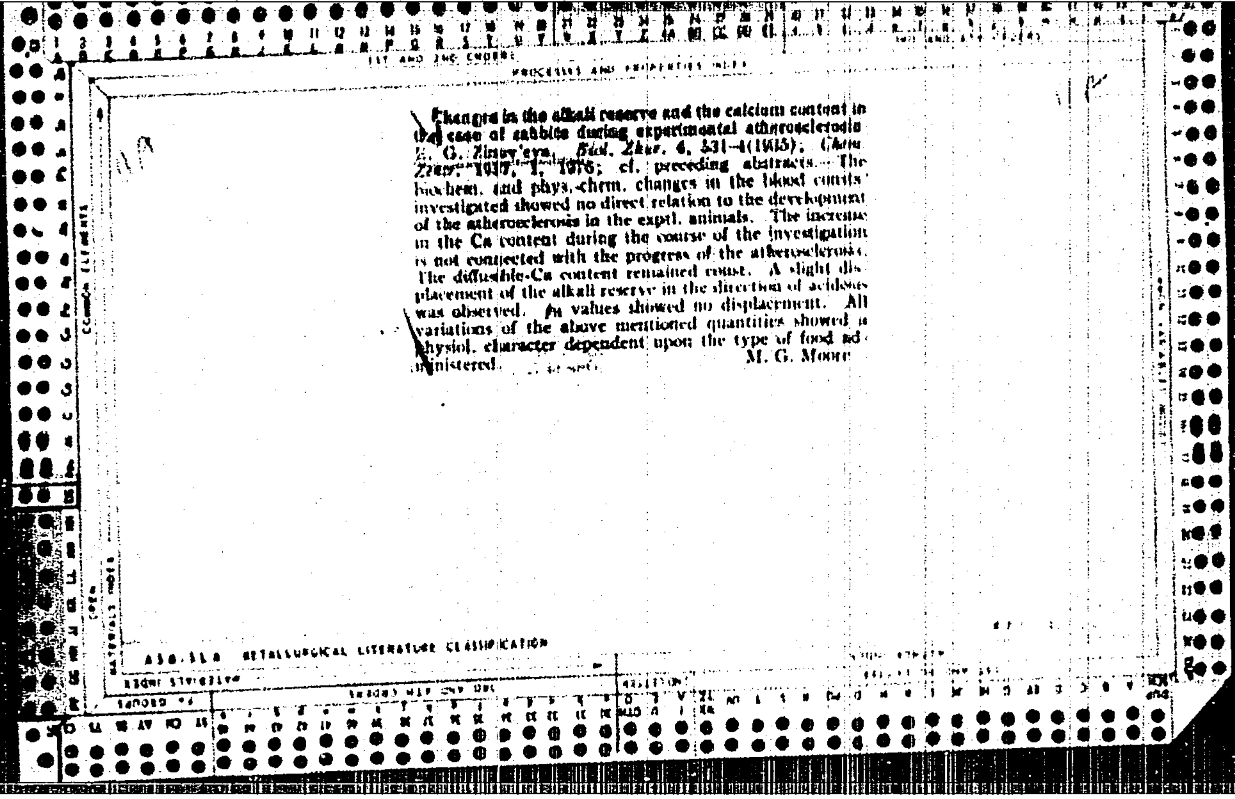
Inst : Not given

Title : The Effect of Small Quantities of Ionizing Radiation on Paramaecium Caudatum (on Radio-Stimulation).

Orig Pub : Dokl. AN SSSR, 1956, 110, No 3, 379-382

Abstract : The effect of small doses (0.005, 0.05, 0.5, 2.5 and 10 rep per hour) of radioactive emanations was studied on the rate of Paramaecium caudatum division. The radiation was conducted uninterruptedly for 7 days. S^{35} (in the form of $Na_2S^{35}O_4$) at a dose of 0.02 rep per hour and I^{131} (in the form of NaI^{131}) at doses of 0.05 - 5 rep per hour yielded

Card : 1/2



PROCESSES AND PROPERTIES INDEX

Changes in the alkali reserve and the calcium content in the case of rabbits during experimental atherosclerosis. E. G. Zinov'eva. *Biol. Zhur.* 4, 531-4(1935); *Chem. Zentr.* 1937, I, 1976; cf. preceding abstracts.—The biochem. and phys.-chem. changes in the blood consts. investigated showed no direct relation to the development of the atherosclerosis in the exptl. animals. The increase in the Ca content during the course of the investigation is not connected with the progress of the atherosclerosis. The diffusible-Ca content remained const. A slight displacement of the alkali reserve in the direction of acidosis was observed. pH values showed no displacement. All variations of the above mentioned quantities showed a physiol. character dependent upon the type of food administered. M. G. Moore

ASD-SLA METALLURGICAL LITERATURE CLASSIFICATION

ACC NR: AT6036566 SOURCE CODE: UR/0000/66/000/000/0176/0177

2/

AUTHOR: Zal'tsman, G. L.; Zinov'yeva, I. D.; Savich, A. A.; Selivra, A. I.

ORG: none

TITLE: The functional state of nervous system centers in humans and animals during the formation of convulsive reactions to hyperoxia [Paper presented at the Conference on Problems of Space Medicine held in Moscow from 24 to 27 May 1966]

SOURCE: Konferentsiya po problemam kosmicheskoy meditsiny, 1966. Problemy kosmicheskoy meditsiny. (Problems of space medicine); materialy konferentsii, Moscow, 1966, 176-177

TOPIC TAGS: hyperoxia, central nervous system, oxygen induced convulsion, electroencephalography

ABSTRACT: A complex study was made of higher nervous activity, EEG's and EMG's (electromyograms) and cardiovascular and respiratory system parameter measurements in human subjects who breathed high-pressure (3.5 and 4 at) oxygen until the initial pathological epileptoid symptoms appeared. Experiments beyond that point utilized dogs and rabbits. In the animal experiments, electrodes were implanted in various parts of the brain, including deep structures, and electrograms were made during respiration of oxygen at pressures up to 5 at various stages of the formation of the convulsive reaction.

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L 10948-67

ACC NR: AT6036566

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It was found that in the initial stage of hyperoxia, high voltage discharges appear on the EEG of humans and the electrosubcorticogram of animals. These shifts are compensated in this stage and do not affect behavioral and sympathetic reactions, which show adaptive changes only.

In the final stage of high pressure oxygen breathing -- the precursor period -- whole groups of subcortical and cortical structures are recruited into the process, and dysfunctions of the motor, cardiovascular, respiratory, and other systems of the organism simultaneously appear.

This precursor stage is followed by the onset of chronic convulsions due to profound disturbance of the normal processes of cerebral regulation, and the appearance in all structures of epileptoid pathological rhythms. [W.A. No. 22; ATD Report 66-116]

SUB CODE: 06 / SUBM DATE: 00May66

Card 2/2 bp

ZINOV'YEVA, I.P.

Method for a rapid tentative determination of bilirubin. Lab.delo 5 no.5:19-21 S-O '59. (MIRA 12:12)

1. Iz biokhimicheskoy laboratorii (zav. - prof. L.G. Smirnova) Nauchno-issledovatel'skogo instituta akusherstva i ginekologii Ministerstva zdravookhraneniya RSFSR, Moskva.
(BILIRUBIN) (BLOOD--EXAMINATION)

IVANOV, I.I.; ZHAKHOVA, Z.N.; ZINOV'YEVA, I.P.; MIROVICH, N.I.; MOISEYEVA, V.P.;
PARSHINA, M.A.; TUKACHINSKIY, S.Ye.; YUR'YEV, V.A.

Fractional composition of proteins and contractile function of various muscle types. Biokhimiia 24 no.3:451-458 My-Je '59. (MIRA 12:9)

1. Biochemical Laboratory of the Institute of Obstetrics and Gynecology, Academy of Medical Sciences of the U.S.S.R., Chair of Biochemistry of the Pediatric Medical Institute, and the Institute of Blood Transfusion, Leningrad.

(MUSCLE PROTEINS,
fractional composition, eff. on musc. contraction (Rus))

ZINOV'YEVA, I.P.

Contractile proteins of the uterus. Akush. i gin. 35 no.2:45-49 Mr-Ap '59. (MIRA 12:5)

1. Iz laboratorii biokhimii (zav. - prof. L.G.Smirnova) Instituta akusherstva i ginekologii (dir. - dots. L.G. Stepanov) Ministerstva zdravookhraneniya RSFSR.
(PREGNANCY, metab.
contractile proteins (Rus))
(PROTEINS, metab.
contractile, of uterus in pregn. (Rus))

ACC NR: AT6036568 SOURCE CODE: UR/0000/66/000/000/0177/0178

29

AUTHOR: Zinov'yeva, I. P.; Rubashkina, L. A.; Kostin, V. K.

ORG: none

TITLE: Blood transaminase as an index of human tolerance to landing impact accelerations /Paper presented at the Conference on Problems of Space Medicine held in Moscow from 24 to 27 May 1966/

SOURCE: Konferentsiya po problemam kosmicheskoy meditsiny, 1966. Problemy kosmicheskoy meditsiny. (Problems of space medicine); materialy konferentsii, Moscow, 1966, 177-178

TOPIC TAGS: space medicine, space physiology, blood chemistry, impact acceleration, biologic acceleration effect, human physiology

ABSTRACT: A "tolerance criterion" of impact acceleration is blood transaminase activity. The literature shows that the activity of these enzymes increases as a result of injury to tissues.

In this study, a change in the activity of glutamic-alanine, and glutamic-aspartic transaminase was studied. Human subjects were exposed to landing accelerations with various buildup rates (2500—6000 G/sec and higher) acting along the longitudinal or transverse axes of the body in 32 experiments.

It was found that large accelerations (32—42 G) with a buildup rate of

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L 10949-67

ACC NR: AT6036568

2500 G/sec (chest-back) and 22—25 G accelerations (head-pelvis) with a buildup rate of 2500—6000 G/sec (7.5 m/sec landing velocity) increased transaminase activity by a factor of 1.5—2.0. The activity of these enzymes was occasionally accompanied by fresh erythrocytes in the urine. At lower magnitudes, enzyme activity was not altered. The highest indices of transaminase activity occurred 24 hr after exposure to acceleration. After 4—5 days, these indices returned to normal. In the majority of cases, the increase in transaminase activity, which reflected disrupted tissue integrity, preceded other functional changes and indicated that acceleration which could be well tolerated. These tests showed that the activity of transaminase enzymes during impact accelerations is a sufficiently sensitive index by which to judge the reaction of the organism to an applied stress. [W.A. No. 22; ATD Report 66-116]

SUB CODE: 06 / SUBM DATE: 00May66

Card 2/2 bp

GRINZAYD, M.I.; ZINOV'YEVA, I.S.; IVANOVA, N.M.; VOSTRIKOVA, E.P.

Content of pathogenic staphylococci in the feces of children with intestinal diseases. Zhur. mikrobiol., epid. i immun. 41 no.11:31-35 '65. (MIRA 18:5)

1. Kuybyshevskiy institut epidemiologii, mikrobiologii i gigiyeny.

ZINOV'YEVA, I.S.; SHPAGINA, M.K.

Use of fluorescent serum for the rapid diagnosis of dysentery.
Zhur. mikrobiol., epid. i immun. 33 no.12:112-115 D '62.
(MIRA 16:5)

1. Iz Kuybyshevskogo instituta epidemiologii, mikrobiologii i gigiyeny.
(DYSENTERY) (SERUM DIAGNOSIS)

ZAL'TSMAN, G.L.; ZINOV'YEVA, I.D.; KUMANICHKIN, S.D.; TURYGINA, A.V.

Comprehensive study of the state of some systems of the human organism under the conditions of increased pressure of oxygen. Funk. org. v usl. izm. gaz. sredy 3:138-144 '64. (MIRA 17:11)

KOVALEVSKAYA, I.L.; EPSHTEYN-LITVAK, R.V.; DMITRIYEVA-RAVIKOVICH, Ye.M.; KURNOSOVA, N.A.; SHCHEGLOVA, Ye.S.; FERDINAND, Ya.M.; KHOMIK, S.R.; MAKHLINOVSKIY, L.P.; PETROVA, S.S.; GOLUBOVA, Ye.Ye.; GONCHAROVA, Z.I.; SARMANEYEV, A.P.; SIZINTSEVA, V.P.; Prinimali uchastiye: MEDYUKHA, G.A.; OSOKINA, L.A.; RACHKOVSKAYA, Yu.K.; OSOVTSEVA, O.I.; DEDUSENKO, A.I.; KOVALEVA, P.S.; KARASHEVICH, V.P.; CHEBOTAREVICH, N.D.; CHIGIR', T.R.; SKUL'SKAYA, S.D.; KECHETZHIYEV, B.A.; DEMINA, A.S.; ZUS'MAN, R.T.; YESAKOV, P.I.; SYSOYEVA, Z.A.; ZINOV'YEVA, I.S.; FAL'CHEVSKAYA, A.A.; DENISOVA, B.D.; TIMOFELEVA, R.G.; SYRKASOVA, A.V.; LYANTSMAN, S.G.

Reactivity and immunological and epidemiological effectiveness of alcoholic typhoid and paratyphoid fever vaccines in school children. Zhur. mikrobiol., epid. i immun. 33 no.7:72-77 Jl '62. (MIRA 17:1)

1. Iz Moskovskogo, Rostovskogo, Omskogo institutov epidemiologii i mikrobiologii, Stavropol'skogo instituta vaktsin i syvorotok i Ministerstva zdravookhraneniya RSFSR. 2. Rostovskiy institut epidemiologii i mikrobiologii (for Kovaleva). 3. Stavropol'skiy institut vaktsin i syvorotok (for Sysoyeva). 4. Kuybyshevskiy institut epidemiologii i mikrobiologii (for Zinov'yeva). 5. Saratovskaya gorodskaya sanitarno-epidemiologicheskaya stantsiya (for Lyantsman).

ZINOV'YEVA, I.S.; SHPAGINA, M.K.

Bacteriological characteristics of acute gastroenteritis in Kuybyshev. Zhur. mikrobiol. epid. i immun. 31 no. 5:97-98 My '60. (MIRA 13:10)

1. Iz Kuybyshevskogo epidemiologii, mikrobiologii i gigiyeny.
(KUYBYSHEV—GASTROENTERITIS)